

Claim 17 (new): The method of claim 11, wherein said closed hydraulic system is housed substantially within said thigh and leg frame assemblies.

Claim 18 (new): The method of claim 11, wherein said closed hydraulic system is housed substantially outside said thigh and leg frame assemblies.

Claim 19 (new): The method of claim 11, wherein said flow rate control valve is housed within said thigh frame assembly.

Claim 20 (new): The method of claim 11, wherein said flow rate control valve is housed within said leg frame assembly and said mechanical linkage mechanism is configured to communicate the AP movement of the thigh stump to said flow rate control valve independent of knee angle.

### **REMARKS**

Original claims 1, 3, 5, 6 and 10 have been amended and new claims 11 through 20 have been added. Reconsideration, entry and allowance of all pending claims 1 through 20 are respectfully solicited.

In the July 9, 2004 Office Action, the Examiner rejected Applicant's claims 1-3, 5-7 and 9 as anticipated by Petrofsky et al. (6,113,642) and claims 8 and 10 as obvious in view of Petrofsky. In addition, the Examiner rejected 1 and 6 as indefinite and provided guidance as to how to overcome the § 112 rejections. The Examiner's courtesy in providing such guidance and indicating the allowability of claim 4 is acknowledged with appreciation.

Applicant has amended independent claim 1 to more particularly point out and distinctly claim the invention in view of Petrosfky. Applicant has amended claims 1 and

6 to adopt the Examiner's suggestions to correct and clarify these claims, and has amended claim 5 to correct an inadvertent omission discovered therein. Applicant has added method claims 11 through 20 that mirror apparatus claims 1 through 10.

As amended, the claimed invention is neither anticipated by nor obvious in view of Petrofsky. Petrofsky teaches an above-knee prosthesis having a knee joint demonstrating variable resistance comprising a thigh assembly that receives a thigh stump, a leg assembly with foot attached, a hinge interconnecting the thigh and leg assemblies to form an artificial knee joint, a closed hydraulic system that communicates with the knee joint to provide resistance to knee rotation, a valve means to vary the resistance of the flow of fluid in closed hydraulic system, and electronic sensors that communicate primarily knee angles to the valve means to vary the resistance of knee rotation.

Petrofsky does not teach a means to translate the AP movement of the thigh stump into the degree of resistance provided by the closed hydraulic system. Rather, the focus of the sensors of Petrofsky are on knee angle. Petrofsky, Fig. 6 and column 6 lines 59 through 6; Fig. 17 part 204. The degree of knee resistance provided in the prosthesis of Petrofsky is programmed into the Petrofsky micro-processor based upon a typical gait cycle. Petrofsky, Column 3 lines 55 to 67.

Conversely, the degree of resistance provided by the closed hydraulic system of the current invention is specifically independent of knee angle. In the claimed invention, the user controls the degree of resistance of knee rotation through voluntarily moving his or her thigh stump in an AP direction. The subject invention permits the amputee to place his or her full weight on the prosthetic leg even with bent knee, as for example, in

order to climb or descend stairs or other incline. The manner of design and programming of the Petrofsky prosthesis teaches away from full knee resistance with bent knee.

Varying the degree of knee rotation resistance independent of knee angle is achieved in the present invention by housing the rate flow control valve in the thigh frame assembly in proximity to the mechanical linkage mechanism. In the alternative embodiment where the rate flow control valve is housed in the leg assembly, the mechanical linkage mechanism is specifically configured to communicate AP movement to the valve independent of knee angle.

Petrofsky also does not teach a closed hydraulic system that communicates with the thigh and joint assembly to provide resistance to knee rotation. Resistance to knee rotation in the prosthesis of Petrofsky is provided by a closed hydraulic system directly to the knee joint itself. See Petrofsky, Fig. 5, rotor shaft 9 and rotor 20, and column 7 lines 7-12. This requires the prosthesis of Petrofsky to include a relatively complex and potentially expensive knee control unit or assembly. Petrofsky, Fig. 5 part 2. The prosthesis of the current invention is able to provide variable resistance to knee rotation without the knee control unit or assembly taught by Petrofsky.

Dependent claims 5, 6, 15 and 16 are also neither anticipated by, nor obvious in view of, Petrofsky. When used, the electronic sensor and microprocessor of the present invention is programmed to communicate the AP movement of the thigh stump to the flow rate control valve to vary knee rotation resistance. Where additional sensors are used, the user nevertheless exerts overall control through voluntary AP movement of the thigh stump.

Claims 2 through 10 and 12 through 20 are each dependent upon, and include all limitations of, independent claims 1 and 11. Accordingly, for the reasons set forth above, claims 1 through 20 all recite a novel and unobvious invention.

The additional prior art cited by the Examiner is noted and deemed not material to patentability of the subject invention.

### **CONCLUSION**

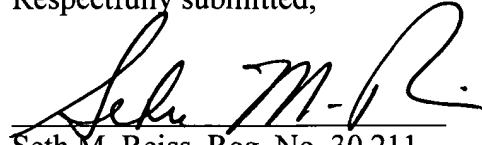
In light of the amendments and remarks presented above, Applicant submits that the application is now in condition for allowance.

This Response is being faxed and mailed with certificates within the shortened statutory period allowed for reply. The total number of claims, as well as the number of independent claims, as amended, are within the number of claims initially paid for. However, if there is any fee deficiency, authorization is hereby given to charge any such fee deficiency (small entity status claimed) to Deposit Account No. 501198.

The Examiner is invited to contact the undersigned attorney at (808) 523-8894, business hours Hawaii standard time, or via email at <[sethreiss@lawhi.com](mailto:sethreiss@lawhi.com)> in order that

the undersigned attorney may endeavor to resolve any outstanding issues as expeditiously as possible thereby to avoid prolonged prosecution of the present application.

Respectfully submitted,



Seth M. Reiss, Reg. No. 30,211

Godbey Griffiths Reiss

1001 Bishop Street

Pauahi Tower, Suite 2300

Honolulu, Hawaii 96813

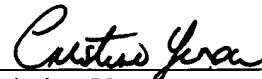
Phone: (808) 523-8894

Fax: (808) 523-8899

E-mail: <[sethreiss@lawhi.com](mailto:sethreiss@lawhi.com)>

CERTIFICATE OF MAILING

I hereby certify that this amendment and response is being deposited with the U.S. Postal Service with sufficient postage as first class mail addressed to Mail Stop Non-Fee Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on August 30, 2004.



Cristine Yerxa

Legal Assistant to Seth Reiss

Godbey Griffiths Reiss  
Honolulu, Hawaii